Reference

Tektronix

RGPIB Command Syntax for TDSET3

077-0088-00

www.tektronix.com

Contacting Tektronix

Tektronix, Inc.
14200 SW Karl Braun Drive or P.O. Box 500
Beaverton, OR 97077 USA

For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

Warranty 9(b)

Tektronix warrants that the media on which this software product is furnished and the encoding of the programs on the media will be free from defects in materials and workmanship for a period of three (3) months from the date of shipment. If any such medium or encoding proves defective during the warranty period, Tektronix will provide a replacement in exchange for the defective medium. Except as to the media on which this software product is furnished, this software product is provided “as is” without warranty of any kind, either express or implied. Tektronix does not warrant that the functions contained in this software product will meet Customer’s requirements or that the operation of the programs will be uninterrupted or error-free.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period. If Tektronix is unable to provide a replacement that is free from defects in materials and workmanship within a reasonable time thereafter, Customer may terminate the license for this software product and return this software product and any associated materials for credit or refund.

THIS WARRANTY IS GIVEN BY TEKTRONIX IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. TEKTRONIX AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TEKTRONIX’ RESPONSIBILITY TO REPLACE DEFECTIVE MEDIA OR REFUND CUSTOMER’S PAYMENT IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. TEKTRONIX AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER TEKTRONIX OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Table of Contents

TDSET3 RGPIB Command Syntax

About TDSET3 RGPIB Command Syntax

This document describes the GPIB command syntax and the commands that you can use to access TDSET3 functionality through RGPIB.

You can use the RGPIB to perform the following tasks.

- Start the TDSET3 application
- Recall the saved setup, either default or the user defined
- Select the technology (speed) and the test
- Configure test parameters
- Run the test
- Retrieve the results for the conducted tests
- Generate Reports
- Save the current setup
- Exit application.

Starting and Setting Up the Application

To start the TDSET3 application, you must send the oscilloscope the following GPIB command:

application:activate “Ethernet Compliance Test Software”

VARIABLE: VALUE TDS COMMAND SYNTAX

The application uses the VARIABLE:VALUE command with arguments to execute the application.

Syntax

For setting,

VARIABLE:VALUE "<variable name>","<variable value>"

The arguments <variable name> and <variable value> are required in the order indicated.

For query,

VARIABLE:VALUE? "<variable name>"

Note: *Commands are case and space sensitive. All variables and values supported by TDSET3 are in small case and without any spaces in between characters.*

TDSET3 Application Command Arguments and Queries

VARIABLE: VALUE TDSET3 COMMAND arguments and queries

The following tables list the variables for TDSET3, the possible values for each of the variables, and the function of each of the variables.

Returns define the data returned in response to a query command.

Table 1: Application specific variables

Variable name	Value	Function	Query for the variable returns …
Application			
recall	The setup file name, which consists of any string from 1 to 40 characters from A to Z and/or 0 to 9 or Special characters like "." or "default", which refers to the default file name. If file extension not specified, it is assumed to be .ini.	Recalls the settings for the application from the mentioned file. The directory location of the file is the default (C:\TekApplications\TDSET3\setup) If the file does not have appropriate setting values, the default settings will override the same.	Query is not valid.
save	The setup file name, which consists of any string from 1 to 40 characters from A to Z and/or 0 to 9 or Special characters like "."If file extension not specified , it is assumed to be .ini.	Saves the current application settings in the file name specified. The directory location of the file is the default (C:\TekApplications\ TDSET3\setup).	Query is not valid.
application	{exitwrecall/exitworecall}	Exits the application.	The value of application variable.
application	{minimize}	Minimizes the active application.	The value of application variable.
application	{hide}	Hides the active application.	The value of application variable.
application	{maximize}	Maximizes the active application.	The value of application variable.
application	{show}	Shows the application, which was earlier hidden.	The value of application variable.

Table 1: Application specific variables (Contd.)

Variable name	Value	Function	Query for the variable returns ...
application	{ }		The GPIB status, GPIB Enabled or GPIB Disabled.
version	Query only		The version number of the application.
Speed			
speed	{1000-T, 100-TX, 10-T}	Sets the speed.	The value of the set speed.
Select test 1000-T			
test	{templatea, templateb, templatec, templated, templatef, templateh}	Selects the template test.	The value of test variable.
test	{peaka, peakb, peakc, peakd}	Selects the peak volt test.	The value of test variable.
test	{templatepeakall}	Selects all the templates and peak volt tests.	The value of test variable.
test	{droopg,droopj,droopall}	Selects the droop test.	The value of test variable.
test	{jitmasterfilt*****, jitmasterunfilt*****}	Selects the jitter master test.	The value of test variable.
test	{jitslavefilt*****, jitslaveunfilt*****}	Selects the jitter slave test.	The value of test variable.
test	{distortion}	Selects the distortion test.	The value of test variable.
test	{returnloss1000}	Selects the return loss test.	The value of test variable.
test	{cmvolt1000}	Selects the CM voltage test.	The value of test variable.
Select test 100-Tx			
test	{template/templatepos/templateneg}	Selects the template test, with the polarity.	The value of test variable.
test	{outputvoltboth/outputvoltpos/outputvoltneg}	Selects the output volt test, with the polarity.	The value of test variable.
test	{ampsym}	Selects the amp sym test.	The value of test variable.
test	{risetimeboth/risetimepos/risetimeneg}	Selects the rise time test, with the polarity.	The value of test variable.
test	{falltimeboth/falltimepos/falltimeneg}	Selects the fall time test, with the polarity.	The value of test variable.
test	{rfsymboth/rfsympos/rfsymneg}	Selects the rfsym test, with the polarity.	The value of test variable.
test	{overshootboth/overshootpos/overshotneg}	Selects the overshoot test, with the polarity.	The value of test variable.
test	{jitboth/jitpos/jitneg}	Selects the jitter test, with the polarity.	The value of test variable.

Table 1: Application specific variables (Contd.)

Variable name	Value	Function	Query for the variable returns …
test	{dcdrand/ dcd0101}	Selects the distortion test, with pattern values.	The value of test variable.
test	{all}	Selects all the 100-Tx tests, with polarity as "both and pattern as "random".	The value of test variable.
test	{returnlosstx100/ returnlossrx100}	Selects the return loss test.	The value of test variable.
Select test 10-Tx			
test	{mauboth/maunorm/mauinv}	Selects the mau test with both, normal or inverted.	The value of test variable.
test	{lpload1wotpm/lpload2wotpm/lp100wotpm/lpload1wtpm/lpload2wtpm/lp100wtpm}	Selects the link pulse test, with or without load.	The value of test variable.
test	{tpidlload1wotpm/tpidlload2wotpm/tpidl100wotpm/tpidlload1wtpm/tpidlload2wtpm/tpidl100wtpm}	Selects the tp idl test, with or without load test.	The value of test variable.
test	{diffvoltmax/diffvoltall}	Selects the diff volt test.	The value of test variable.
test	{harmonic}	Selects the harmonic test.	The value of test variable.
test	{jitwcableall/ jitwcablenorm/jitwcable8bt/ jitwcable85bt/jitwocableall/jitwocablenorm/jitwocable8bt/jitwocable85bt}	Selects the jitter test, with or without cable.	The value of test variable.
test	{returnlosstx10/ returnlossrx10}	Selects the return loss test.	The value of test variable.
test	{cmvolt10}	Selects the CM voltage test.	The value of test variable.
run	{on/off}***	Runs the previously selected test if value is ON. If OFF, stops the currently running test, if any. Please read note on run command for further details.	The status of run either on or off.
Results			
resultsum	{Query only}		The summary of the last test conducted, pass/fail.
resultfor	{any "test" value except templatepeakall,droopall,templateboth,outputvoltboth,risetimeboth,falltimeboth,rfsymboth,overshootboth,jitterboth, all,jitwcableall,jitwocableall,mauboth,diffvoltall,diffvoltmax}	Sets the result variables (listed below) with appropriate result values for that particular test. Please refer to table A-6 for valid values for "resultfor" variable.	

Table 1: Application specific variables (Contd.)

Variable name	Value	Function	Query for the variable returns

Table 1: Application specific variables (Contd.)

Variable name	Value	Function	Query for the variable returns …
Status			
Status*****	{Query only}		The error code or “Test Stopped”/ “Test running” /”Test Complete”, “Change Mode Required”.
processdone	{no}**	Indicates that a set command follows. Please read note on processdone command for further details.	

TDSET3 Application Configuration Parameters

About Application Configuration Parameters

This section describes the TDSET3 application configuration parameters, and includes the query for the variable returns.

Table 2: Application Configuration Parameters

Variable name	Value	Function	Query for the variable returns ...
Config for 1000BaseT			
avgs:1000	{n} n >= 64 and n <= 10,000	Configuring the number of averages for template peak and droop 1000Base-T tests.	The number of averages.
avgs4distortion	{n} n >= 64 and n <= 10,000	Configuring the number of averages distortion 1000Base-T test.	The number of averages set for distortion test.
clkedge	{rising /falling}	Configuring the clock edge for jitter tests under 1000Base-T.	The type of clock edge, either rising or falling.
data:1000	{ch1/ch2/ch3/ch4}*	Configuring the source data for template, peak, droop, jitter, distortion and cmvoltage 1000Base-T tests.	The channel chosen for source data.
disturber	{yes/no}	Configuring the disturber for template, peak, droop and distortion tests in 1000Base-T.	The status indicating if the disturber is included or not.
filter	{Int/ext}	Configuring the filter, internal or external, for template and peak tests in 1000Base-T.	The type of the filter used, either internal or external.
masterclk	{ch1/ch2/ch3/ch4}*	Configuring the master clock for jitter 1000Base-T test.	The value of the channel chosen for master clock.
meastype	{TIE/Histogram}	Configuring the measure type for unfiltered jitter test in 1000BaseT.	The measure type.
slaveclk	{ch1/ch2/ch3/ch4}*		

Table 2: Application Configuration parameters (Contd.)

Variable name	Value	Function	Query for the variable returns ...
reclen	{100K/1 Meg/4 Meg/ 7.5 Meg/8 Meg/10 Meg/16 Meg}	Configuring the record length for jitter tests in 1000Base T. This is not present for unfiltered jitter test with measurement type set to Histogram. Default value is max memory available on the oscilloscope.	The value of record length previously set.
resolution	{n} n >= 2 and n <= 75	Configuring the resolution for the distortion test in 1000Base T.	The value of the resolution previously set.
txtclksrc	{ch1/ch2/ch3/ch4}*	Configuring the clock, when distortion test is selected and txtclk is set to yes, for 1000Base-T.	The channel chosen for txtclk source.
txtclk	{yes/no}	The status indicating if the txtclk is included or not.	The status indicating if the txtclk is included or not.
lpfilter	{yes/no}	Configuring the status of the LP Filter for distortion tests.	The status of the LP filter for distortion tests.
jitterlpfilter	yes/no	Configuring the status of the Jitter Low Pass filter for jitter tests.	Status of the Jitter Low Pass filter for jitter tests.
rlsrc1:1000	{ch1/ch2/ch3/ch4}*	Configuring the sources P1/P3/P5/P7 for the return loss test in 1000Base T.	The value of the source1 for return loss.
rlsrc2:1000	{ch1/ch2/ch3/ch4}*	Configuring the sources P2/P4/P6/P8 for the return loss test in 1000Base T.	The value of the source2 for return loss.
rloutput:1000	{ref1/ref2/ref3/ref4}*	Configuring the source for the return loss test in 1000Base T.Ref3 and Ref4 can be chosen only on a 4-channel oscilloscope.	The value of the return loss for output waveform.
rllimit:1000	{ref1/ref2/ref3/ref4}*	Configuring the source for the return loss test in 1000Base T.	The value of the limit for output waveform of return loss.
avgtime:1000	{n} n >= 100 and n <= 10,000	Configuring the average time for return loss test for 1000Base T.	The value of average time.
smooth:1000	{n} n >= 00 and n <= 10	Configuring the average frequency for return loss test for 1000Base T.	The value of average frequency.
pairid	{a/b/c/d}	Configuring the pair id for return loss test for 1000Base T.	The value of the pair id previously set.

Table 2: Application Configuration Parameters (Contd.)

Variable name	Value	Function	Query for the variable returns ...
load:1000	{"load85/100/115","load100"}	Configuring the load parameter for return loss test in 1000BaseT.	The value of the load parameter.
awg:1000	{awgselect,awg4xx/awg2021 /awg5xx/awg6xx/awg7xx}	Configure the AWG being used for 1000Base-T return loss tests.	Returns the AWG series being used for 1000Base-T return loss test.
datatm2	{ch1/ch2/ch3/ch4}*	Configuring the data test mode 2 source for the jitter test in 1000Base T.	The value of the test mode 2 source for jiiter test.
datatm3	{ch1/ch2/ch3/ch4}*	Configuring the data test mode 3 source for the jitter test in 1000Base T.	The value of the test mode 3 source for jiiter test.
hysteresis	{n} n >= 5.0 and n <= 30.0	Configuring the hysteresis value for jitter 1000Base-T tests.	The value of hysteresis for jitter tests.
Jigmatch			
jmmeas	{jmdistall/jmdutamp/jmprobeamp}	Measure the jig match parameters.	Query not valid.
jmdef	{jmdistall/jmdutamp/jmprobeamp}	Set the jig match parameters to default.	Query not valid.
jmlastjm	Query only		The last jig match parameter measured.
jmamp	Query only		The value of the amp.
jmfreq	Query only		The value of the freq.
jmdutamp	Query only		The value of the DUT amp.
jmprobeamp	Query only		The value of the probe point amp.
jmatten	Query only		The value of the atten.
jmstatus	Query only		The jigmatch status, either jmon/jmoff. ON indicates jig match measure is in progress.
jmaction	{jmapply/jmcancel}	Applies the measured values or cancels the same.	
Change test mode			
Changetestmode*****	Ok, cancel	Indicates the jitter test run to continue.	
Configuration for 100BaseTx			
acq:100	{sample/avg}	Configuring the acquisition to sample or average, for all 100Base-T tests except template and jitter.	The type of acquisition.

Table 2: Application Configuration Parameters (Contd.)

Variable name	Value	Function	Query for the variable returns ...
data:100	{ch1/ch2/ch3/ch4}*	Configuring the source data for 100Base-Tx tests.	The channel chosen for source data.
pulsewidth	{16/80}	Configuring the pulse width for rise/fall time test, R/F sym test for 100-Tx.	The pulse width value.
maskscale	{norm,0.95,1.05}	Configuring the template scale for template tests of 100 Base T.	The value of template scale.
rlsrc1:100	{ch1/ch2/ch3/ch4}*	Configuring the sources P1/P3 for the return loss test in 100-Tx.	The value of the source1 for return loss.
rlsrc2:100	{ch1/ch2/ch3/ch4}*	Configuring the sources P2/P4 for the return loss test in 100-Tx. Channel 3 and channel 4 can be chosen on a 4-channel oscilloscope only.	The value of the source2 for return loss.
rloutput:100	{ref1/ref2/ref3/ref4}*	Configuring the source for the return loss test in 100-Tx.	The value of the return loss for output waveform.
rllimit:100	{ref1/ref2/ref3/ref4}*	Configuring the source for the return loss test in 100-Tx.	The value of the limit for output waveform of return loss.
avgtime:100	{n} n >= 100 and n <= 10,000	Configuring the average time for return loss test for 100-Tx	The value of average time.
smooth:100	{n} n >= 0 and n <= 10	Configuring the average frequency for return loss test for 100-Tx.	The value of average frequency.
load:100	{"load85/100/115","load100"}	Configuring the load parameter for return loss test in 100BaseTx.	The value of the load parameter.
awg:100	{awgselect,awg4xx/awg2021 /awg5xx/awg6xx/awg7xx}	Configure the AWG being used for 100BaseTx return loss tests.	Returns the AWG series being used for 100BaseTx return loss test.
Configuration for 10BaseT			
acq:10	{sample/avg}	Configuring the acquisition to sample or average, for link pulse and tp_idl tests under 10Base-T.	The type of acquisition.
avgs:10	{n} n >= 2 and n <= 10,00,000	Configuring the number of averages for harmonic 10Base-T test.	The number of averages.
data:10	{ch1/ch2/ch3/ch4}*	Configuring the source data for 10Base-T tests.	The channel chosen for source data.
masksel	{both/head/tail}	Configuring the mask selection section for 10-T link pulse or TP_IDL tests.	The mask selection.
mauscale	{norm/0.9/1.1}	Configuring the MAU scale for MAU template test for 10Base-T.	The mau scale value, either normal or 0.9 or 1.1.

Table 2: Application Configuration Parameters (Contd.)

Variable name	Value	Function	Query for the variable returns …
mautype	{Int/ext}	Configuring the mau type for 10Base-T jitter with/without cable (parameteric) and MAU(template) tests.	The MAU type, either internal or external.
timescale	{10/1}	Configuring the time scale for 10Base – T, harmonic test.	The time scale value.
linkseq	{norm/Fast}	Configuring the sequence for Link Pulse test in 10Base T.	The type of sequencing.
testoptions	{both/template/timing}	Configuring the test options for the link pulse test in 10BaseT.	The test option chosen for the link pulse test.
output:10	{math1/math2/math3/math4}*	Configuring the output for harmonic 10Base-T test.	The channel chosen for output.
rlsrc1:10	{ch1/ch2/ch3/ch4}*	Configuring the sources P1/P3 for the return loss test in 10Base T.	The value of the source1 for return loss.
rlsrc2:10	{ch1/ch2/ch3/ch4}*	Configuring the sources P2/P4 for the return loss test in 10Base T.	The value of the source2 for return loss.
rloutput:10	{ref1/ref2/ref3/ref4}*	Configuring the source for the return loss test in 10Base T.	The value of the return loss for output waveform.
rllimit:10	{ref1/ref2/ref3/ref4}*	Configuring the source for the return loss test in 10Base T.	The value of the limit for output waveform of return loss.
avgtime:10	{n} n >= 100 and n <= 10,000	Configuring the average time for return loss test for 10Base T.	The value of average time.
smooth:10	{n} n >= 0 and n <= 10	Configuring the average frequency for return loss test for 10Base T.	The value of average frequency.
load:10	{"load85/100/115","load100"}	Configuring the load parameter for return loss test in 10BaseT.	The value of the load parameter.
awg:10	{awgselect,awg4xx/awg2021/ awg5xx/awg6xx/awg7xx}	Configure the AWG being used for 10BaseT return loss tests.	Returns the AWG series being used for 10BaseT return loss test.
report	{summary/detail}	Invokes the report generation, summary or detailed.	Query not valid.
repname	The setup file name, which consists of any string from 1 to 40 characters from A to Z and/or 0 to 9 or Special characters like "."	Sets the report layout file name.	The file name.

Table 2: Application Configuration Parameters (Contd.)

Variable name	Value	Function	Query for the variable returns …

Note on channel selections

***Note:** Channel 3 and Channel 4 can be chosen on a 4-Channel oscilloscope only. Ref3 and Ref4 can be chosen on a 4-Channel oscilloscope only. Math3 and Math4 can be chosen on a 4-Channel oscilloscope only.*

Note on processdone command

****Note:** Set commands are of the format variable:value "<variable_name>", "<value>". Get or query commands are of the format variable:value? "<variable_name>"*

For TDSET3 versions later than 1.3.1, BEFORE every remote GPIB SET command, the user has to send <variable:value "processdone","no"> and AFTER every set command, the user has to wait on "processdone" variable till it returns a "yes", that is, the user has to keep polling for <variable:value? "processdone"> and only after it returns a "yes", the next command, be it set or get can be sent.

Please ensure that this order is followed for correct functioning of the script.

Sample script is listed below. It does a recall default, selects TemplatePeakall test, runs the same, and queries for peaka's result measured.

variable:value "processdone", "no"

variable:value "recall", "default"

variable:value? "processdone"

"no"

…..keep polling till it returns a yes

variable:value? "processdone"

"yes"

variable:value "processdone","no"

variable:value "test","templatepeakall"

variable:value? "processdone"

"no"

…..keep polling till it returns a "yes"

variable:value? "processdone"

“yes”

variable:value “processdone”,”no”

variable:value run”,”on”

variable:value? “processdone”

“no”

…..keep polling till it returns a “yes”

variable:value? “processdone”

“yes”

variable:value“processdone”,”no”

variable:value “resultfor”,”peaka”

variable:value? “processdone”

“no”

…..keep polling till it returns a “yes”

variable:value? “processdone”

“yes”

variable:value? “resultmeas”

Note on run command

***Note:** After issuing a run command, the remote user should wait upon processdone to return a "yes" and then query "status" and if that returns "Test Complete" only then go ahead and query for result details.*

Sometimes, if after the run command is issued, the processdone returns a "yes", it does not mean the test is complete, the test could be stopped or there must be some error condition which caused the TDSET3 to terminate the run operation and thereby indicate processdone as "yes". Thus it is advisable to always wait on "processdone" before looking for results and just to ensure the test is complete, query the status and if does not indicate any error or test stopped, but returns test complete, only then look for results.

Note on retrieving remarks

****Note:** Result remarks for some tests are lengthy and cannot be retrieved by one query. Thus, the following snippet has to be used to retrieve all the remarks block. Each block is one chunk of remarks data.*
variable:value? "remcounter"

"4"

//Returns the number of remarks block available. This indicates there are 4 blocks of remarks for the last test run. If user wants to retrieve 1st and 2nd block of remarks, the following list of commands need to be sent.

variable:value "processdone", "no"

variable:value "getremblk", "1"

//On receiving this command TDSET3 fills "resultrem" with the 1st block of remarks.Wait on "processdone" to return "yes", then query for result remarks.

variable:value? "processdone"

"yes"

variable:value? "resultrem"

"RMS = 1.48mV SNR = 53.59dB

Peak Distortion at symbol 1188 = - 5.427mV

Peak Distortion at symbol 1863 = + 4.855mV

Peak Disto"

//this will return the 1st block of remarks data.

variable:value “processdone”, “no”

variable:value “getremblk”, “2”

//On receiving this command TDSET3 fills “resultrem” with the 2nd block of remarks

variable:value? “processdone”

“yes”

variable:value? “resultrem”

"tion at symbol 222 = - 4.785mV

TX_TCLK Freq = 125.0MHZ

TX_TCLK ppm = 0.000006% [0.057 ppm]

DC Offset Measured = -15.39mV"

Note on Change test mode for jitter tests

********Note:*** *If any of the following tests are run through remote GPIB, <variable:value "run", "on" > starts the test run. The "Status" indicates "Test running".*

When the "status" indicates "Change Mode Required", the application waits until you switch the test mode and indicate the same by sending the command

<variable:value "changetestmode","OK"> or <variable:value "changetestmode","cancel">.

If the changetestmode is OK, the test continues and the "Status" indicates "Test Running". At the end of the test, results are available in the result field.

If changetestmode is "Cancel", the test is stopped, and the status is updated to indicate error.

This waiting on changetestmode applies only to the following Jitter tests:

Master filtered Jitter with TXT_CLK

Slave filtered Jitter with TXT_CLK

Slave filtered Jitter without TXT CLK

Slave unfiltered Jitter without TXT_CK for both TIE and Histogram option

TDSET3 Application GPIB Commands

GPIB Commands for 100Base-Tx

The following oscilloscope commands can be used to set or query the number of waveforms, horizontal position, and vertical position for 100Base-Tx tests.

Table 3: Oscilloscope GPIB Commands for 100Base-Tx

Group / Name	Value	Function	Query returns
ACQuire:NUMAVg x	x >= 2 and x <= 10,000	Sets the number of waveforms for 100Base-Tx.	
ACQuire:NUMAVg ?		Queries the number of waveforms for 100Base-Tx.	The number of waveforms.
HORIZONTAL:POSITION x	x >= 0 and x <= 99.9	Sets the horizontal position for 100Base-Tx.	
HORIZONTAL:POSITION ?		Queries the horizontal position for 100Base-Tx.	The value of the horizontal position.
CHx:POSITION y	x >= 1 and x <= 4 y >= 0.0 and y <= 5.00	Sets the vertical position for the selected channel for 100Base-Tx.	
CHx:POSITION ?		Queries the vertical position for the selected channel for 100Base-Tx.	The value of the vertical position for the selected channel.

GPIB Commands for 10Base-T

The following oscilloscope commands can be used to set or query the number of waveforms, fail threshold, horizontal position, and vertical position for 10Base-T tests.

Table 4: Oscilloscope GPIB Commands for 10Base-T

Group / Name	Value	Function	Query returns
ACQuire:NUMAVg x	x >= 2 and x <= 10,000	Sets the number of waveforms for 10Base-T.	
ACQuire:NUMAVg ?		Queries the number of waveforms for 10Base-T.	The number of waveforms.
MASK:TEST:THRESHOLD x	x >= 1 and n <= 2147483647	Sets the fail threshold for 10Base-T.	
MASK:TEST:THRESHOLD ?		Queries the fail threshold for 10Base-T.	The value of the fail threshold.
MASK:TEST:WAVEFORM x	x >= 1 and n <= 2147483647	Sets the number of waveforms for 10Base-T.	
MASK:TEST:WAVEFORM ?		Queries the number of waveforms for 10Base-T.	The number of waveforms.
HORIZONTAL:POSITION x	x >= 0 and x <= 99.9	Sets the horizontal position for 10Base-T.	
HORIZONTAL:POSITION ?		Queries the horizontal position for 10Base-T.	The value of the horizontal position.
CHx:POSITION y	x >= 1 and x <= 4 y >= 0.0 and y <= 5.00	Sets the vertical position for the selected channel for 10Base-T.	
CHx:POSITION ?		Queries the vertical position for the selected channel for 10Base-T.	The value of the vertical position for the selected channel.

Common GPIB commands

If individual tests are run, after the test run is complete, results are made available. If multiple tests are run, by default, result of one of the tests is made available. For example, if outputvoltboth is run, outputvoltpos's result is made available, if 1000BaseT template peak all is run, templateA's result is made available. The below table gives the list of multiple tests and the test name whose result details are made available soon after the test is complete.

Table 5: Default tests whose result details will be filled after multiple tests are run.

Variable name	Value
1000-T tests	
templatepeakall	templatea
droopall	droopg
100-Tx tests	
all	templatepos
outputvoltboth	outputvoltpos
risetimeboth	risetimepos
falltimeboth	falltimepos
rfsymboth	rfsympos
overshootboth	overshootpos
jitterboth	jitterpos
jitwcableall	jitwcablenorm
jitwocableall	jitwocablenorm
10-T tests	
mauboth	maunorm
diffvoltall	diffvoltpos
diffvoltmax	diffvoltmaxpos

Table 6: Valid values for “resultfor” variable.

Variable name	Value
1000-T tests	
resultfor	{templatea/ templateb/ templatec/ templated/templatef/templateh/peaka/ peakb / diffab/ peakc/ peakd/droopg/droopj/jitmasterfilt/ jitmasterunfilt /jitslavefilt/ jitslaveunfilt/ distortion/ returnloss1000/ cmvolt1000}
100-Tx tests	
resultfor	{templatepos/templateneg/outputvoltpos/outputvoltneg / ampsym/ risetimepos/ risetimeneg / falltimepos/ falltimeneg/ rfsympos/rfsymneg/rfsymmaxmin overshootpos/overshootneg/ jitpos/jitneg/ dcdrand/ dcd0101/ returnlosstx100/ returnlossrx100}
10-T tests	
resultfor	{maunorm/mauinv/ lpload1wotpm/lpload2wotpm/lp100wotpm/lpload1wtpm/lpload2wtpm/lp100wtpm/lptiming tpidlload1wotpm/tpidlload2wotpm/tpidl100wotpm/tpidlload1wtpm/tpidlload2wtpm/tpidl100wtpm/ diffvoltmaxpos/diffvoltmaxneg/diffvoltpos/diffvoltneg /harmonic / jitwcablenorm/jitwcable8bt/ jitwcable85bt/jitwocablenorm/jitwocable8bt/jitwocable85bt / returnlosstx10/ returnlossrx10/ cmvolt10}

Error codes for TDSET3

Table 7 shows the error codes for TDSET3.

Table 7: Error Codes and corresponding messages

Error code	Message
1000BaseT	
E101	Few samples, edge finding failed.
E102	The selected input sources should be mutually exclusive.
E103	Invalid signal. The measured clock is out of range.
E104	The measured value is unstable. The previous values will be restored.
E105	Not enough clock edges.
E106	Invalid clock frequency.
100BaseTx	
E201	Unable to find the 010101 pattern in the Random Sequence.
Common	
E401	Cannot connect to the instrument.
E402	This application requires firmware version 2.2.0 or above. Please install the latest firmware available at the Tektronix web site. The application will exit now.
E403	Default file does not exist.
E404	Unable to set the mask.
E405	Enter a valid file name to generate a report.
E406	Report data base file read failed.
E407	System file exception.
E408	System memory exception.
E409	Unknown exception.
E410	Invalid signal. Check whether the DUT is connected.
E411	This application has not been enabled. To enable the application, select Utility>Option Installation to enter a key. To purchase a key, contact your Tektronix representative. Select Help>Technical Support to contact Tektronix representative.
E412	Calibration Data unavailable.
E413	Unable to find the crossover.
E414	The selected oscilloscope sources are mutually exclusive.
E415	The selected output sources are mutually exclusive.

Table 7: Error Codes and corresponding messages (Contd.)

Error code	Message
E416	External trigger unavailable. Check whether the 'sync Out' of the AWG is connected to the 'AUX IN' of the Oscilloscope.
E417	System failure.
E418	Unknown error.
E419	TekScope not running. TDSET3 will now exit.
E420	Change the probe attenuation to ÷10 before continuing.
Remote GPIB	
E601	ERROR...GPIB write failure.
E602	ERROR...GPIB read failure.
E603	ERROR...Unable to clear event queue.
E604	WARNING...Invalid value set; variable reset to nearest limit value.
E605	EXCEPTION...Conversion error: value reset to the old value.
E606	ERROR...Application setup file unavailable.
E607	ERROR...Selected test to query the result details is invalid.
E608	ERROR...Selected test has not been run.
E609	ERROR...Invalid value is set, old value will be reset.
E610	ERROR...Test in progress, unable to retrieve the results.
E611	ERROR...Character string too long.
E612	ERROR...Invalid test/configuration selected.
E613	ERROR…Unable to save application settings.
E614	ERROR...You cannot set values for query only commands.
E615	ERROR...Unable to retrieve remarks, test name unknown.
E616	ERROR...Unable to retrieve remarks for specified block id.
E700	ERROR...GPIB Time Out.